

# ES&H manual

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## Environment, Safety, and Health

### Volume V

#### Part 50: Personnel Training and Qualification

#### 50.1

### Personnel Selection, Qualification, Training, and Staffing at LLNL Nuclear Facilities

(Formerly H&SM Supplement 2.20)

Recommended for approval by the ES&H Working Group

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New document or new requirements

Approval date: November 7, 1996  
Editorial Update April 1, 2001

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This work performed under the auspices of the U.S. Department of Energy by University of California Lawrence Livermore National Laboratory under Contract W-7405-ENG-48.

## 50.1

**Personnel Selection, Qualification, Training,  
and Staffing at LLNL Nuclear Facilities<sup>1</sup>**

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<sup>1</sup> Minor revision

## 50.1

**Personnel Selection, Qualification, Training,  
and Staffing at LLNL Nuclear Facilities****1.0 Introduction**

This document sets requirements for personnel selection, qualification, training, and staffing requirements established by the Department of Energy (DOE) for nuclear facilities. Document 3.5, "Conduct of Operations for LLNL Facilities," in the *Environment, Safety, and Health (ES&H) Manual* briefly addresses the topic of managing workers in an on-the-job training program.

The requirements in DOE O 5480.20A (Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities) apply to personnel involved in the operation, maintenance, and technical support of LLNL nuclear facilities. Entry-level requirements, training, and qualification for LLNL personnel working in nuclear facilities are intended to provide reasonable assurance that these personnel have, or can acquire, the knowledge and skills to operate and maintain the facility in a safe and reliable manner under all conditions.

**2.0 Requirements****2.1 Personnel Selection**

Facility AD's shall use the Laboratory's established process to ensure the selection and assignment of personnel to the facility and its technical support activities and to meet the requirements of this document and DOE O 5480.20A. This process should consider factors such as background, experience, and education and should be based on the ability of the person to meet job performance requirements. Selection of personnel may involve a selection test. Position descriptions and job postings for positions covered by this document shall conform to the training and qualifications required in the Work Smart Standards Set, applicable to nuclear facilities only, through this document.

If an individual does not meet the experience requirements contained in this document, consideration may be given to the collective experience of the facility. Individuals who do not meet the experience requirements for a position may be assigned to that position provided the overall operating organization is considered balanced and strong and that DOE approval is obtained on a case-by-case basis.

## 2.2 Training and Qualification

Qualification is defined in terms of education, experience, training, examination, and any special requirements necessary for performance of assigned responsibilities. The requirements in this document are intended to provide reasonable assurance that personnel at DOE nuclear facilities possess qualifications to operate and maintain the facility safely and reliably under all conditions. Training to support qualification and certification programs shall be based on a systematic approach to training. A graded approach shall be used to establish the systematic approach to training for operations personnel, maintenance personnel, technicians, and the technical staff. Specific requirements are contained in DOE O 5480.20A.

For each of its nuclear facilities, LLNL is required to

- Implement the requirements in DOE O 5480.20A as applicable.
- Prepare and submit a Training Implementation Matrix (TIM) to the DOE-OAK Operations Office Manager for review and approval.
- Prepare procedures that establish the requirements for granting exceptions to specific training or qualification criteria for an individual, as needed, and submit those procedures to the DOE-OAK Operations Office Manager for review and approval.
- Provide written requests as needed for extensions of certified positions (as described in the TIM) to the DOE-OAK Operations Office Manager for approval.
- Perform periodic, systematic evaluations of training and qualification programs. These evaluations shall be conducted in accordance with DOE-STD-1070-94, "Guidelines for the Evaluation of Nuclear Facility Training Programs."

Table 1 summarizes the education and experience requirements for nuclear facility workers.

## 3.0 Responsibilities

All workers and organizations shall refer to Document 2.1, "Laboratory and ES&H Policies, General Worker Responsibilities, and Integrated Safety Management" in the *ES&H Manual* for a list of general responsibilities. This section describes specific responsibilities of LLNL organizations and workers who have key safety roles.

Facility Associate Directors of nuclear facilities are responsible for ensuring personnel assigned to operate, maintain, or provide technical staff to their facility meet the requirements in DOE O 5480.20A and this document.

Payroll Associate Directors who provide institutional support services such as training, maintenance, technical analysis, etc. necessary to assure safe operations of nuclear facilities are responsible for providing employees with base skills, knowledge, and abilities to perform their assigned tasks.

**Table 1. Minimum education and experience required for nuclear facility workers.**

	Education	Experience (in years)	
		Job related	In a nuclear facility
Managers	Bachelors of Science Degree <sup>a</sup>	—	4 <sup>b</sup>
Supervisors	High school diploma	—	3
Operators	High School diploma	—	—
Technicians	—	1	—
Maintenance Personnel	—	1	—
Technical Staff	Bachelors of Science Degree	2	1
Training Coordinators	High school diploma	—	2
Training Instructors	High school diploma	— <sup>c</sup>	— <sup>d,e</sup>

<sup>a</sup> Degree does not need to be in engineering or a related science. The training manager also shall have taken courses in education and technical subjects.

<sup>b</sup> Education or job-related experience may be substituted on a case-by-case basis. The degree may fulfill three of four years of nuclear facility experience required on a one-for-one time basis.

<sup>c</sup> Experience consistent with the material being presented.

<sup>d</sup> Instructors who are responsible for instruction on subjects such as Technical Safety Requirements shall have received training on facility operating characteristics and principles, and operating limits (Safety Limits, Limiting Control Settings, and Limiting Conditions for Operation) and their bases.

<sup>e</sup> Instructors shall have demonstrated knowledge of instructional techniques through training or experience and be qualified by the Training Manager (or equivalent) for the material being presented.

## 4.0 Work Standards

DOE O 5480.20A, "Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities."

## 5.0 Resources for More Information

### 5.1 LLNL Contacts

For additional information, contact the following as necessary:

- Directorate Assurance Manager
- ES&H Teams
- Price Anderson Act Amendments (PAAA) Project Office (ext. 3-7540)

### 5.2 Other Sources

DOE-STD-1070-94, "Guidelines for the Evaluation of Nuclear Facility Training Programs."

Document 40.1, "LLNL Training Program Manual," in the *ES&H Manual*.

## Appendix A

### Terms and Definitions

Certification	The process by which nuclear facility management provides written endorsement of the satisfactory qualifications of a person for a position.
Education	The successful completion of requirements established by an accredited educational institution.
Fissionable materials handler	A person certified by contractor facility management to manipulate or handle significant quantities of fissionable materials or manipulate the controls of equipment used to produce, process, transfer, store, or package significant quantities of such materials.
Job analysis	A systematic method used to obtain a detailed list of the tasks for a specific job.
Managers	<p>A person whose assigned responsibilities include</p> <ul style="list-style-type: none"> <li>• Ensuring that a plant or facility is safely and reliably operated, and that supporting operational and administrative activities are properly controlled.</li> <li>• Ensuring nuclear safety, operational efficiency and reliability, control of onsite emergencies, and any other activities necessary to safeguard the health and safety of the workforce, the general public, and the environment.</li> </ul>
Medical examination	A procedure performed by a licensed medical physician or a physician's assistant to determine the physical condition and general health of a person for duty. If the examination is conducted by a physician's assistant, the results are subject to the review and approval of a licensed physician.
Nuclear experience	Skills acquired at any facility in which radioactive materials are routinely handled, stored, processed, or utilized.



Operators	Persons responsible for performing operations associated with engineered safety features, as identified in the Safety Analysis Report; operating support systems that could affect engineered safety features, manipulating facility controls, monitoring parameters, and operating equipment in facility safety systems. Operators include fissionable material handlers, tritium facility operators, chemical process operators, waste tank operators, and enrichment facility operators.'
Qualification	Education, experience, training, examination, and any special requirements necessary for performance of assigned responsibilities.
Supervisors	For purposes of this document, these individuals are responsible for the quantity and quality of work performed and for directing the actions of operators, technicians, or maintenance personnel.
Technical Staff	Personnel in these positions are responsible for supervision and performance of technical support functions for the operating organization. Personnel involved in surveillance, testing, analyzing facility data, planning modifications, program review, and technical problem resolution in their area of expertise are also included. They have expertise in mechanical, electrical, instrumentation and control, chemistry, radiation protection, safety, quality assurance/independent assessment, or reactor engineering.
Technicians	For purposes of this document, these individuals are principally involved in calibration, inspection, troubleshooting, testing, maintenance, and radiation protection activities at the facility.
Training	Instructions designed to develop or improve job performance.
Training implementation matrix	A plan prepared by each nuclear facility that describes the selection, qualification, and training requirements of this document and DOE Order 5480.20A. It includes any exceptions to requirements that are not implemented.